historical reconstruction to take into account present constraints on distribution, which may not be obvious without detailed ecological study. A case in point is the apparent absence of *Turdus fumigatus* from the upper half of the Rio Negro. Possibly this has an explanation in the relative poverty of the forests along this black-water river (Janzen 1974), which may produce relatively poor feeding conditions for species that forage on the forest floor.

Acknowledgements. I am most grateful to Dr Lester L. Short for critical comments on an earlier draft of this paper, and to the following for information on localities of specimens of *Turdus fumigatus* in the collections in their care: L. F. Baptista (Occidental College), E. R. Blake (Field Museum of Natural History), H. F. de A. Camargo (Museum of Zoology, São Paulo), F. C. Novaes (Goeldi Museum, Belém), J. P. O'Neill (Museum of Zoology, Louisiana State University). Dr. Carl Edelstam (Naturhistoriska Riksmuseet, Stockholm) and Dr. Kenneth C. Parkes (Carnegie Museum, Pittsburgh) kindly sent on loan the specimens on which this paper is mainly based.

References:

Gyldenstolpe, N. 1945. The bird fauna of Rio Juruá in western Brazil. *Kungl. Svenska Vetenskap. Handl.* 22.
Haffer, J. 1974. Avian speciation in tropical South America. *Publ. Nuttall Orn. Club* 14.
Hartert, E. 1920. Types of birds in the Tring Museum. *Novit. Zool.* 27: 425–505.
Hellmayr, C. 1934. Catalogue of birds of the Americas and the adjacent islands. Part VII. *Field Mus. Nat. Hist., Zool.* Ser. 13.
Janzen, D. H. 1974. Tropical blackwater rivers, animals and mast fruiting by the Dipterocarpaceae. *Biotropica* 6: 69–103.
Meyer de Schauensee, R. & Phelps, W. H. 1978. *A Guide to the Birds of Venezuela.* Princeton University Press.
Naumburg, E. M. 1930. The birds of Matto Grosso, Brazil. *Bull. Am. Mus. Nat. Hist.* 60.
Ridgely, R. 1976. *A Guide to the Birds of Panama.* Princeton Universtiy Press.
Ridgway, R. 1912. *Color Standards and Color Nomenclature.* Washington.
Slud, P. 1964. The birds of Costa Rica: distribution and ecology. *Bull. Am. Mus. Nat. Hist.* 128.
Zimmer, J. T. & Phelps, W. H. 1955. Three new subspecies of birds from Venezuela. *Am. Mus. Novit.* 1709.

Address. Dr. D. W. Snow, British Museum (Natural History), Tring, Herts, U.K.

A Late Pleistocene (Wisconsinan) avifauna from West Palm Beach, Florida

by Jonathan J. Becker

Received 1 August 1984

The West Palm Beach local fauna was collected in 1969 from the western half of tract 17, block 1, plot 9 of Palm Beach Farms, Section 28, Township 43 S., Range 42 E., Palm Beach County, Florida (26°42′N, 80°10′W). Converse (1973) described the excavation of this locality and gave a preliminary faunal list of fish, amphibians, reptiles, and mammals. Radiocarbon dating of a mastodon rib from this site produced a date of 21,150 ± 400 years Before Present (Buckley & Willis 1972), which places it near the time of the maximum extent of the Wisconsinan glaciation. This date agrees with the presence of the late Rancholabrean mammalian species *Tapirus veroensis, Mammuthus jeffersonii* and *Bison antiquus* from this site.

This note describes the avifauna from this locality, specimens of which are deposited in the Florida State Museum (=UF) and the Pierce Brodkorb (=PB) Collection. Specimens used for comparisons are from both the latter collections and from the George C. Page Museum (Natural History Museum of Los Angeles County =LACM). No characters or comparisons are listed for a species if the fossil specimens do not differ significantly from the living members of the species. Anatomical terminology follows Baumel *et al.* (1979).

Pied-billed Grebe *Podilymbus podiceps.* UF 48047, distal end of left humerus. The transverse width of the distal end (6.85 mm) is well within the observed range of both males and females of this species as given by Storer (1976) and therefore it is not possible to sex this incomplete specimen. Extinct species of others of this genus are *Podilymbus wetmorei* Storer 1976 from the late Pleistocene Reddick local fauna, Florida and *P. majusculus* Murray 1967 from the Pliocene Hagerman local fauna, Idaho. The humeri of these 2 species are not known. However, *P. wetmorei* is more robust and *P. majusculus* is somewhat larger than *P. podiceps,* and it is unlikely that the West Palm Beach specimen could represent either of these palaeospecies.

Great Blue Heron *Ardea herodias.* UF 48049, distal end of left tarsometatarsus.

An extinct Stork *Ciconia maltha.* L. Miller, 1910. UF 48043, distal end of right tibiotarsus; UF 48044, 48045, distal ends of 2 right tarsometatarsi.
These specimens are slightly larger than comparable elements from the Itchtucknee River (Campbell 1980) and from the Bradenton local fauna (Becker 1985).

Wood Stork *Mycteria americana.* UF 48050, distal end of left tibiotarsus.
This specimen is similar in size to that of a large male *M. americana.* The fossil species *M. wetmorei* is larger and differs by having a proportionally wider distal end and a broader anterior intercondylar sulcus.

Dabbling Duck *Anas* sp. UF 48046, distal end of right humerus.
I can find no consistent, distinguishing characters on the distal end of the humerus to separate the Mallard *Anas platyrhynchos,* the Mottled Duck *Anas fulvigula* and the American Black Duck *Anas rubripes,* and therefore have identified this element only to genus.

Hawk Eagle *Spizaetus* cf. *grinnelli* (L. Miller, 1911). UF 49962, fragmentary proximal end of right tarsometatarsus.
This specimen differs from tarsometatarsi of *Haliaeetus leucocephalus* and *Aquila chrysaetos* by having a deeper fossa parahypotarsalis lateralis and a more distinct impressiones retinaculi extensorii; differs from the tarsometatarsus of the fossil species *Wetmoregyps daggetti* (L. Miller, 1915) by having the tuberositas m. tibialis cranialis more lateral, the sulcus extensoris and fossa infracotylaris dorsalis much less excavated, the fossa parahypotarsalis medialis larger and more excavated, and the impressiones retinaculi extensorii less elevated and farther apart; differs from the tarsometatarsus of *Amplibuteo woodwardi* (L. Miller, 1911) by being smaller in size, having the tuberositas m. tibialis cranialis less elevated, and the sulcus extensoris and fossa parahypotarsalis medialis more deeply excavated. The specimen agrees with the tarsometatarsus of *Spizaetus grinnelli* (L. Miller, 1911) in all the above characters, and differs from the tarsometatarsi of all species examined by having the crista plantaris mediana extending farther distad.

Four extinct species of *Spizaetus* have been described from North America. Three of these are poorly known: *Spizaetus pliogryps* (Shufeldt, 1891), based on 4 phalanges from the Pleistocene of Fossil Lake, Oregon; *S. willetti* (Howard, 1935), known from a distal tarsometatarsus from Smith Creek Cave, Nevada, and from a distal tarsometatarsus, distal ulna, and mandibular fragment from Howells Ridge Cave, New Mexico; and *S. tanneri* Martin, 1971 based only on a distal tarsometatarsus from the early Pleistocene of Broadwater, Nebraska. *S. grinnelli* (L. Miller, 1911), on the other hand, described from Rancho La Brea, is represented by over 1100 skeletal elements.

Two species of *Spizaetus* occur in the neotropics today—*S. ornatus* and *S. tyrannus*. Both are smaller than *S. grinnelli* (Howard 1932; her measurements are cited below). The breadth of the proximal end of the tarsometatarsus from West Palm Beach, estimated at 20 mm, falls within the range of *S. grinnelli* (16.8–21.7 mm) and is larger than that of *S. ornatus* (17.9–18.1 mm). Additionally, the distance from the proximal end to the middle of the tuberositas m. tibialis cranialis (West Palm Beach, 24 mm; *S. grinnelli,* 19.3–26.6 mm; *S. ornatus*, 21.3, 21.9) allows this species to be placed with *S. grinnelli.*

Considering the incomplete nature of the specimen and its differing hypotarsal morphology, I have only tentatively assigned this specimen to species.

Condor *Gymnogyps* sp. PB 7966, distal end of right humerus.
The transverse width of the distal end of this specimen (50.0 mm) is slightly larger than that of the recent California Condor *Gymnogyps californicus* (45.0–49.0 mm) and is within the range of the fossil *G. amplus* (46.4–54.6 mm), as given by Fisher (1947). As it is impossible to segregate all individuals of these 2 species on the basis of absolute size (Fisher 1947), I can only identify the West Palm Beach specimen to genus.

Whooping Crane *Grus americana.* UF 48048, proximal end of left tibiotarsus.

The West Palm Beach local fauna is one of the southernmost Pleistocene avifaunas recorded in the United States. Only 2 other more southern Quaternary localities, the Holocene (pre–1900) Nichol's Hammock (Hirschfeld 1968) and the Monkey Jungle local fauna (Webb 1974; Ober 1978) of Rancholabrean age, have produced a microfauna that includes birds. Of the 8 avian taxa reported here, 4 (*Ciconia maltha, Gymnogyps* sp., *Spizaetus* cf. *grinnelli* and *Grus americanus)* are either extinct or have a distribution far removed from Florida today. *Spizaetus* is recorded here for the first time from a fossil deposit in the eastern United States.

Acknowledgements. I thank S. David Webb and B. J. MacFadden, Florida State Museum, Pierce Brodkorb, University of Florida, and the staff of the George C. Page Museum for making fossil specimens available for study. Brodkorb also made recent comparative material available. I especially thank P. Brodkorb, S. Emslie, G. S. Morgan and S. D. Webb for their comments on the manuscript.

References:

Baumel, J. J., King, A. S., Lucas, A. M., Breazile, J. E. & Evans, H. E. (Eds.). 1979. *Nomina Anatomica Avium.* Academic Press, New York.

Becker, J. J. 1985. Additions to the late Pleistocene avifauna of Bradenton, Manatee County, Florida. *Florida Scientist* 47(3): 201–203.

Buckley, J. & Willis, E. H. 1972. Isotopes' Radiocarbon Measurements IX. *Radiocarbon,* 14: 114–139.

Campbell, K. E., Jr. 1980. A review of the Rancholabrean avifauna of the Itchtucknee River, Florida. *Contrib. Sci. Natur. Hist. Mus. Los Angeles County* 330: 119–129.

Converse, H. H., Jr. 1973. A Pleistocene vertebrate fauna from Palm Beach County. *The Plaster Jacket* 21: 1–14.

Fisher, H. I. 1947. The skeletons of recent and fossil *Gymnogyps*. *Pacific Science* 1: 227–236.
Hirschfeld, S. E. 1968. Vertebrate fauna of Nichol's Hammock, a natural trap. *Quart. J. Florida Acad. Sc.* 31(3): 177–189.
Howard, H. 1932. Eagles and eagle-like vultures of the Pleistocene of Rancho la Brea. *Carnegie Inst. Wash., Publ.* 429: 1–82, 29 pls.
Murray, B. G., Jr. 1967. Grebes from the late Pliocene of North America. *Condor* 69: 277–288.
Ober, L. D. 1978. The Monkey Jungle, a late Pleistocene fossil site in southern Florida. *The Plaster Jacket* 28: 1–13.
Storer, R. W. 1976. The Pleistocene Pied-billed Grebes (Aves, Podicipedidae). *Smithsonian Contrib. Paleobio.* 27: 147–153.
Webb, S. D. 1974. Pleistocene llamas of Florida, with a brief review of the Lamini. Pp. 170–213. *In* Webb, S. D. (ed.). *Pleistocene Mammals of Florida*. University Presses of Florida, Gainesville.

Address. Jonathan J. Becker, Department of Zoology, University of Florida, Gainesville, Florida 32611, U.S.A.